

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Lin, Chhiu-Tsu      Confirmation No. 2108  
Serial No.: 10/540,607      Group Art Unit: 1797  
Filed: 10/26/05      Examiner: JARRETT, Lore  
For: SENSOR FOR DETECTING COMPOUNDS  
Attorney Docket No.: 2384.00060

**SUBSTITUTE AMENDMENT UNDER RULE 1.116**

Dear Sir:

This is in response to the Notice of Non-Compliant Amendment dated May 3, 2010, Part of Paper No. 20100430-1. Please enter the following amendments to the application in order to place the application in condition for allowance or at least in better condition for appeal. Please amend the application consistent with the instructions found attached hereto:

**CLAIMS:**

1. (Currently amended) A charge-transfer chemical sensor comprising: a sol-gel material affixable to a predetermined surface, a backing that enables affixation to a surface, and charge-transfer indicating means within said sol-gel for detecting and signaling a presence of at least one chemical.
2. (Previously Presented) The sensor according to claim 1, wherein said indicating means includes colorimetric signal means for signaling the presence of at least one chemical.
3. (Previously Presented) The sensor according to claim 2, wherein said signal means is selected from the group consisting essentially of an indicator with Cu (II), an indicator with a Lewis acid, Cu.sup.2+/PEDTA, CuZnSOD, Ni.sup.2+/dimethylglyoxime, thymol blue/Fichlor, thymol blue/sarinase, thymol blue/somanase, and thymol blue/parathion hydrolase.
4. (Previously Presented) The sensor according to claim 1, wherein said sol-gel is an optically transparent xerogel.
5. (Previously Presented) The sensor according to claim 1, wherein the chemical being detected is selected from the group consisting essentially of chemical warfare agents, agricultural pesticides, and insecticides.

6. (Currently amended) An indicator for detecting and indicating a presence of at least one chemical, said indicator comprising: a sol-gel material affixable to a predetermined surface, a backing that enables affixation to a surface, and charge-transfer indicating means within said sol-gel for detecting and signaling a presence of at least one chemical.

7. (Previously presented) The indicator according to claim 6, wherein said indicating means includes colorimetric signal means for signaling the presence of at least one chemical.

8. (Previously Presented) The indicator according to claim 7, wherein said signal means is selected from the group consisting essentially of an indicator with Cu (II), an indicator with a Lewis acid, Cu.sup.2+/PEDTA, CuZnSOD, Ni.sup.2+/dimethylglyoxime, thymol blue/Fichlor, thymol blue/sarinase, thymol blue/somanase, and thymol blue/parathion hydrolase.

9. (Previously Presented) The indicator according to claim 6, wherein said sol-gel is an optically transparent xerogel.

10. (Previously Presented) The indicator according to claim 6, wherein the chemical being detected is selected from the group consisting essentially of chemical warfare agents, agricultural pesticides, and insecticides.

11. (Previously presented) A method of detecting a presence of at least one chemical by: applying the indicator of claim 6 to a predetermined surface of an object; and indicating on the indicator the presence of at least one chemical.

12. (Withdrawn) A method of making a chemical sensor by: encapsulating within a sol-gel a detector capable of detecting and signaling a presence of at least one chemical.

13. (Withdrawn) A decontaminating agent for removing contaminants from an area, said decontaminating agent comprising: a sol-gel material affixable to a predetermined surface, and decontaminating means having an affinity for the contaminants within said sol-gel for decontaminating at least one chemical present in the area.

14. (Withdrawn) The decontaminating agent according to claim 13, wherein said decontaminating means is at least one nanoparticle heterogeneous catalyst.

15. (Withdrawn) The decontaminating agent according to claim 14, wherein said at least one nanoparticle heterogeneous catalyst is selected from the group consisting essentially of  $\text{Ce}^{4+}$ /zirconia,  $\text{Zr}^{4+}$ /zirconia, and  $\text{Th}^{4+}$ /zirconia.

16. (Withdrawn) The decontaminating agent according to claim 13, wherein said sol-gel is an optically transparent xerogel.

17. (Withdrawn) The decontaminating agent according to claim 13, wherein the chemical being decontaminated is selected from the group consisting essentially of chemical warfare agents, agricultural pesticides, and insecticides.

**REMARKS**

Claims 1-11 are currently pending in the application. Claims 1, 6, and 11 are in independent form.

Claims 1-11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,200,334 to Dunn, et al. Additionally, Claims 1-11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,637,507 to Wicks. Reconsideration of the rejections is respectfully requested.

In Richardson v. Suzuki Motor Co., Ltd., 868 F.2d 1226, 9 U.S.P.Q.2d 1913 (Fed. Cir. 1989) it was stated: "Every element of the claimed invention must be literally present, arranged as in the claim."

The Office Action has held that the Dunn and Wicks patents disclose a charge-transfer chemical sensor comprising a sol-gel material affixable to a predetermined surface, and indicating means within said sol-gel for detecting and signaling a presence of at least one chemical.

However, when read more closely, the presently amended claims recite limitations not disclosed in the Dunn and Wicks patents. The presently pending independent claims require "a backing that enables affixation to a surface." Support for this amendment can be found in the Paragraph [0032] of the specification ("... the sensor includes a backing that enables the sensor to be affixed to an exterior surface..."). This affixable backing, a novel feature of the present invention, is not disclosed in the Dunn patent, nor the Wicks patent. As such, it is respectfully submitted that the presently amended claims are

patentable over the cited Dunn and Wicks references, and reconsideration of the rejections are respectfully requested.

Additionally, the presently amended claims also require the presence of "charge-transfer indicating means". Support for this amendment can be found in Paragraph [0028] of the specification ("The gel contains therein an indicator that contains Cu(II), a Lewis acid, or other similar compound (Ni.sup.2+, Co.sup.2+, etc.) via charge-transfer chemistry ..."). Conversely, the cited Dunn and Wicks references do not disclose such a charge-transfer chemical sensor. As such, it is respectfully submitted that this novelty also distinguishes the presently amended claims from the cited references, and, as such, reconsideration of the rejections are respectfully requested.

In light of the above distinctions and novelty present in the present invention beyond that which is described in the prior art, reconsideration of the rejections are respectfully requested.

The remaining dependent claims not specifically discussed herein are ultimately dependant on the independent claims. References as applied against these dependent claims do not make up for the deficiencies of those references as discussed above, and the prior art references do not disclose the characterizing features of the independent claims as discusses above. Hence, it is respectfully submitted that all of the pending claims are patentable over the prior art.

In conclusion, it is respectfully submitted that the presently pending claims are in condition for allowance, which allowance is respectfully requested.

Applicant respectfully requests to be contacted by telephone at (248)539-5050 if any remaining issues exist.

The Commissioner is authorized to charge any fee or credit any overpayment in connection with this communication to our Deposit Account No. 11-1449.

Respectfully submitted,

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Dated: May 26, 2010

**CERTIFICATE OF ELECTRONIC FILING VIA EFS-WEB**

Date of Electronic Filing: May 26, 2010

I hereby certify that this correspondence is being electronically filed with the United States Patent & Trademark Office on the above date.

/Natalie Zemgulis/

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